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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/364,159	07/30/1999	KOJI SUZUKI	YKI-0014	9014

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EXAMINER	
SCHECHTER, ANDREW M	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/364,159	SUZUKI ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3 and 12-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3 and 12-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/18/05,9/15/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed 20 September 2005 in the related case 11/008,030 have been fully considered but they are not persuasive.

In related application 11/008,030, similar claims were rejected over the combination of *Nakamura* in view of *Takeda*, as done below. The applicant argued in that case [see paper filed 20 September 2005] that the combination was inappropriate because *Takeda* and *Nakamura* disclose specific LCD configurations, and there is no suggestion that the two-layer structure of *Takeda* can be used in any liquid crystal panel; so there would not be a reasonable expectation of success at making the combination, thereby arriving at the claimed invention. This is not persuasive. *Takeda*'s disclosure is clearly directed towards an improved, two-layer reflecting electrode in an LCD, and it is clear that the features unrelated to the reflecting electrode are not central to its disclosure. *Takeda* teaches the benefits of using this two-layer reflecting electrode, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use it in a wide variety of LCDs with reflecting electrodes, to obtain the benefit of improved reflection properties, with a very reasonable expectation of success.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 3 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nakamura et al.,* U.S. Patent No. 6,124,911 in view of *Takeda et al.,* Japanese Patent Document No. 08-179252 (citations refer to the machine-translation of this document made of record by the applicant).

Considering the limitations of claim 3, *Nakamura* discloses [see Fig. 8, for instance] a reflective liquid crystal display device on which display is created by reflecting light incident from the display observation side, comprising: a display electrode [16] made of a reflective material, a TFT [7] with an active layer [2] electrically interconnected to the display electrode and directly connected to the active layer via a contact hole in a smoothened insulating layer [9]. *Nakamura* does not disclose a back-surface electrode having the recited properties.

Takeda discloses using a two-layer electrode (a back-surface electrode below a display electrode), in place of a single-layer display electrode such as that disclosed by *Nakamura*. It would have been obvious to one of ordinary skill in the art at the time of the invention to use *Takeda's* two-layer electrode, motivated by *Takeda's* teaching that this structure obtains a high reflection factor, and thereby produces a bright display [see paragraph 0006, for instance].

When this teaching of *Takeda* is applied to *Nakamura's* device, the back-surface electrode is disposed in contact with the back surface of the display electrode, it is electrically interconnected to the transistor, it is directly connected to the active layer via

a contact hole, and the display electrode and back-surface electrode are patterned into the same shape. *Takeda*'s back-surface electrode is made of a high melting point metal [Ti], the display electrode is made of aluminum, and the thickness of the back-surface electrode is such that no substantial protrusion is formed in the display electrode [see paragraph 0012, for instance]. The only remaining limitation of claim 13 is the thickness range of the back-surface electrode being 200-1500 Angstroms.

Takeda discloses as a specific example a thickness of the back-surface being 2000 Angstroms (200 nm), which is outside the claimed range. However, Fig. 3 and the discussion thereof [paragraph 0009] clearly teaches a range of effective values above 3 nm (30 Angstroms) to at least 1/4 to 1/5 of the aluminum thickness (in this case 160-200 nm, or 1600-2000 Angstroms, since the aluminum is 800 nm thick). This disclosed range overlaps the recited range with sufficient specificity that it anticipates the recited range [see MPEP 2131.03]. Claim 3 is therefore unpatentable.

Considering the additional limitations of claim 13, *Nakamura* discloses that the TFT's active layer is a polycrystalline silicon layer [2], so claim 13 is also unpatentable. Considering the additional limitations of claim 14, the back-surface electrode is made of a non-oxide metal [Ti], so claim 14 is also unpatentable. Considering the additional limitations of claim 15, the high melting point metal [Ti] is selected from the group consisting of Mo, Ti, W, Ta, Cr, and alloys thereof, so claim 15 is also unpatentable.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nakamura et al.*, U.S. Patent No. 6,124,911 in view of *Takeda et al,* Japanese Patent

Document No. 08-179252 as applied above, and further in view of *Shimada et al.,* U.S. Patent No. 5,805,252.

Nakamura in view of *Takeda* may or may not disclose the back-surface electrode elongating to a place above a part of the active layer, with the contact hole formed between one end portion of the back-surface electrode and the part of the active layer. To the examiner it appears that this is the case, with the end portion being the area above the TFT, which is elongated from the main portion of the display electrode (the part not above the TFT). However, like the figures in the present specification, *Nakamura* only gives a cross-sectional view of the device, so this is perhaps not clear. *Shimada* discloses an analogous reflective LCD in which [see Figs. 14 and 15, for instance] the display electrode elongates to an end portion where the contact hole is made. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the device of *Nakamura*, motivated by the desire to place the TFT near the intersection of the gate and scanning lines (longer lines have more potential for breaks, cross-capacitance, etc.) while having the display electrode covering the whole pixel region. Claim 12 is therefore unpatentable as well.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew Schechter
Primary Examiner
Technology Center 2800
4 November 2005